Micromax™ 8452

Electronic Inks and Pastes

Polymeric Silver Termination

Micromax™ 8452 is a polymeric silver, dippable plating base that provides a flexible stress buffer for plated component terminations. Micromax™ 8452 has been designed to give excellent bend strength and thermal shock resistance in surface mounted applications. The product may be used with a variety of dielectrics, and usually will be applied over a fired-on silver underlayer, such as Micromax™ 4972 silver termination. The user must determine the compatibility in specific applications.

Product characteristics

- Excellent dipping cosmetics
- High thermal shock stability
- Excellent plating performance
- Good green strength
- Processed through heat cure

Product information

Solvent or thinner	Micromax™ 9245
Solid content	60 - 67 %

Rheological properties

Viscosity	15 - 20[1] Pa.s

[1]: Brookfield RVT, UC&SP, SC4-14/6R, 10 rpm, 25 °C

Application technique

Drying time	3 min
Drying temperature	130 - 150 °C

Storage and stability

Shelf life	3[2] months

[2]: in unopened containers, from date of shipment, at temperature between 0 °C - 5 °C

Additional information

How to use

Design & compatibility

- Compatibility
  - Whilst Micromax™ has tested this composition with the recommended processing conditions, it is impossible or impractical to cover every combination of materials, customer processing conditions and circuit layouts. It is therefore essential that customers thoroughly evaluate the material in their specific

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situations in order to completely satisfy themselves with the overall quality and suitability of the composition for its intended application(s).

Processing

- Applications
  - Micromax™ 8452 can be applied by Palomar type dipping or by ChipStar type dipping. It is applied to ceramic component bodies. If neccessary a blotting step can be used to control the paste deposit. Dipping should be carried out in a clean, well-ventilated area.
- Paste preparation
  - Micromax™ 8452 termination composition should be thoroughly mixed before use. This is best achieved by slow, gentle hand stirring with a clean, burr-free spatula (flexible plastic or stainless steel) for 1-2 minutes.
  - Note : Optimum dipping characteristics of Micromax™ 8452 termination composition are generally achieved in the temperature range 20°C - 23°C. It is therefore important that the material, in its container, is at this temperature prior to commencement of dipping.
- Undercoat
  - In order to achieve optimum contact to inner electrodes, it is recommended to apply a thin, fired on silver undercoat to the bodies prior to the application of the Micromax™ 8452. The components must be dipped with Micromax™ 4972 silver termination so that only the ends of the component are coated, and so that there are no paste bands on the sides of the component. Micromax™ 4972 provides an optimum substrate for subsequent application of Micromax™ 8452.
- Thinning
  - Micromax™ 8452 termination composition is optimized for dipping the most commonly used chip sizes. Thinning is not normally required. However, thinning may be required when Micromax™ 8452 is used on larger chip sizes. Customers need to determine the optimum conditions for their applications. Use the Micromax™ recommended thinner for slight adjustments to viscosity or to replace evaporation losses. The use of too much thinner or the use of a non recommended thinner may affect the rheological behaviour of the material and its printing characteristics.
- Drying
  - Micromax™ 8452 polymeric termination should be dried for 3 minutes at 130-150°C in a well ventilated oven or belt dryer.

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- Curing
  - Micromax™ 8452 polymeric termination does not need to be fired. However, it does require a curing step to achieve optimum performance. It can be cured in a box oven. It is essential that the air supply to the oven is clean, dry, and free of contaminants. Micromax™ 8452 polymeric termination is best cured for 1 hour at a temperature of 200 °C. Variation in the curing temperature and/or time at the temperature may result in variation in the final properties.
- Dry/cure process sequence
  - Dip ceramic body in Micromax™ 4972, and then dry and fire as recommended.
  - Dip 1st end of ceramic body with Micromax™ 8452
  - Dry as recommended
  - Dip 2nd end of ceramic body with Micromax™ 8452
  - Dry as recommended
  - Remove ceramic bodies from carrier plate
  - Cure as recommended
- Electroplating
  - Chips terminated with Micromax™ 8452 and processed as recommended can be electroplated in conventional processes.

Properties

- All values reported here are results of experiments in our laboratories intended to illustrate product performance potential with a given experimemtal design. They are not intended to represent the product's specifications, details of which are available upon demand.

General

Yield and performance will depend to a large degree on the care exercised during processing, particularly in the dipping stage. Scrupulous care should be taken to keep 8452 termination composition, the dipping equipment and other tools free of metal contaminants. Dust, lint and other particulate matter may also contribute to poor yield.

Storage and shelf life

Shelf life : Micromax™ 8452 termination compostion has a shelf life of 3 months from date of shipment, for factory-sealed (unopened) containers, when stored under recommended conditions.
Storage : Containers of Micromax™ 8452 termination composition may be stored

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in a clean, stable environment at temperature of between 0 °C - 5 °C, with their lids tightly sealed. Storage in freezers (temperature < 0 °C) is NOT recommended as this could cause irreversible changes in the material.

Safety and handling

For safety and handling information pertaining to this product, read Safety Data Sheet (SDS).